FIG.1

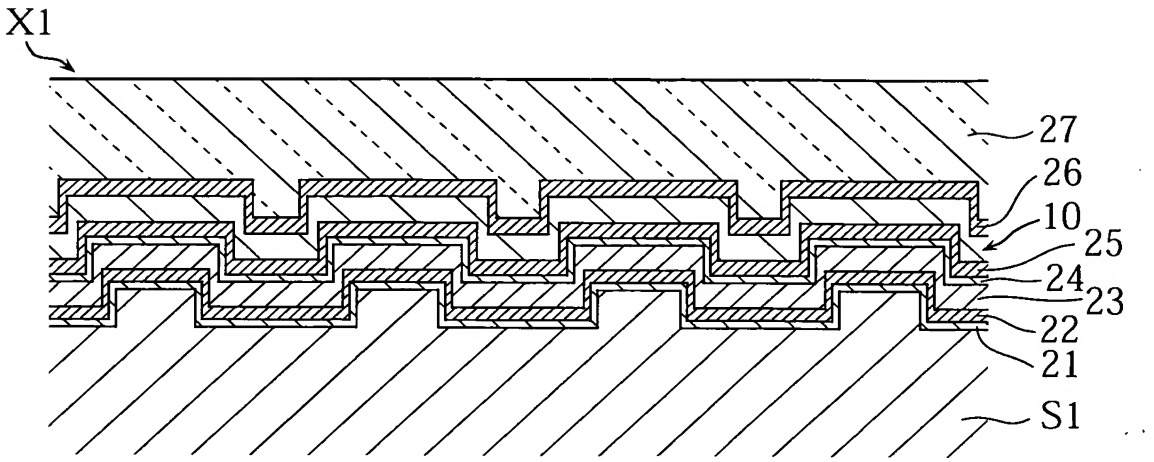

X1
27
26
10
25
24
23
22
21
S1

FIG.2

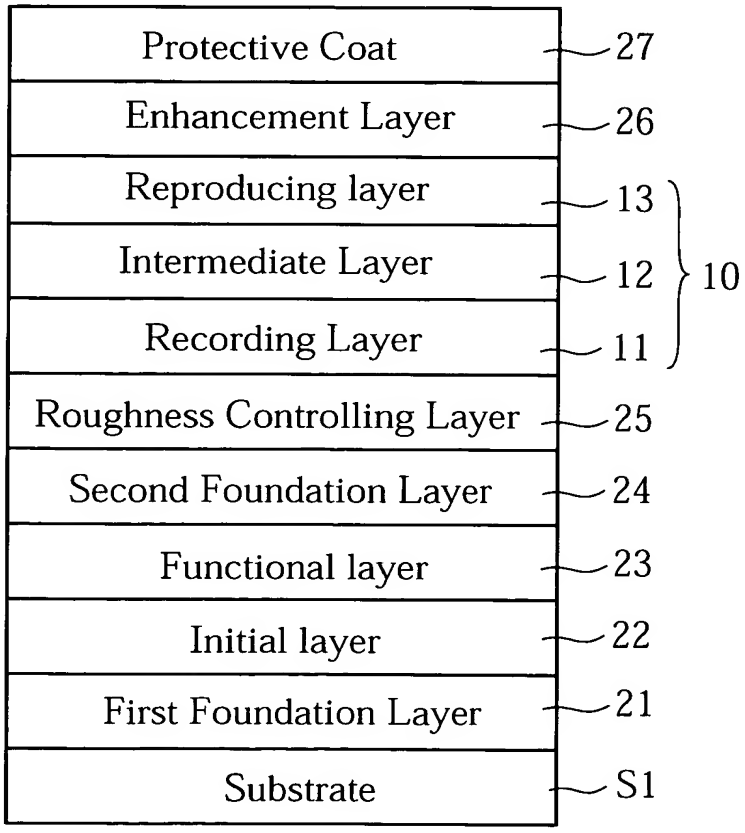

Protective Coat
27
Enhancement Layer
26
Reproducing layer
13
Intermediate Layer
12
10
Recording Layer
11
Roughness Controlling Layer
25
Second Foundation Layer
24
Functional layer
23
Initial layer
22
First Foundation Layer
21
Substrate
S1

FIG.3A

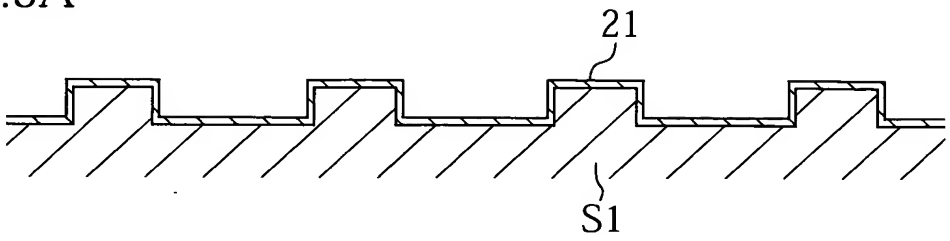


FIG.3B

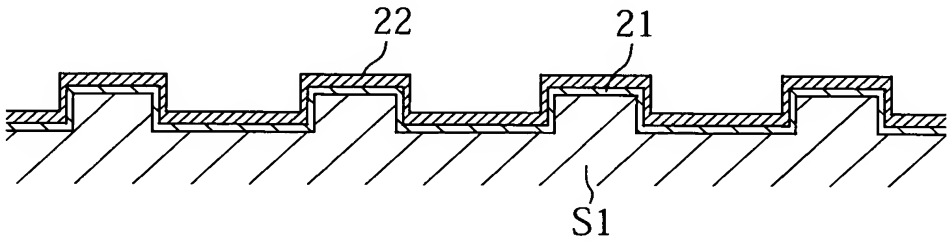


FIG.3C

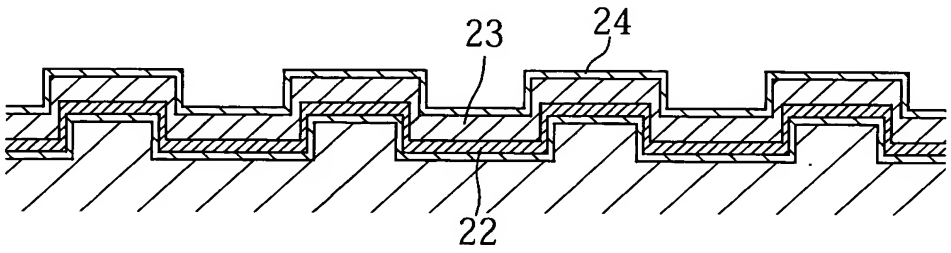


FIG.3D

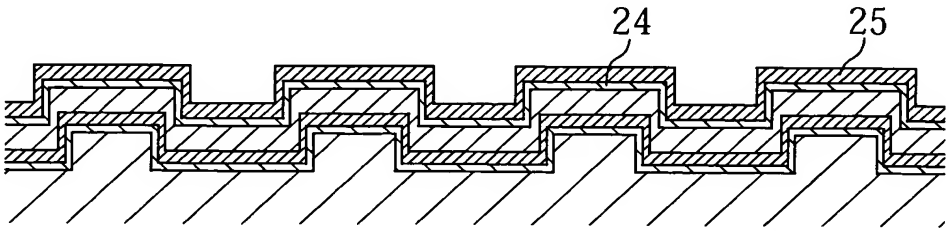


FIG.4A

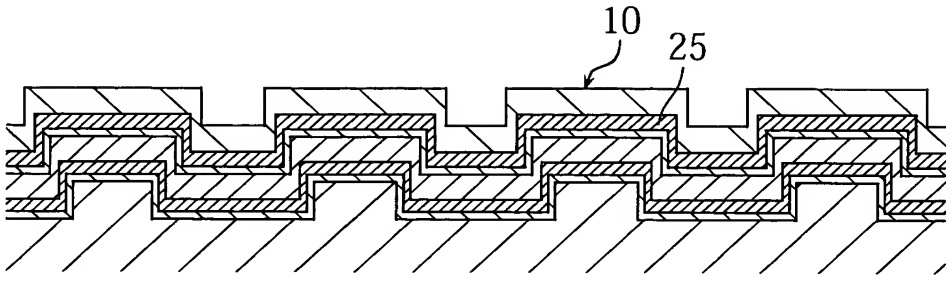


FIG.4B

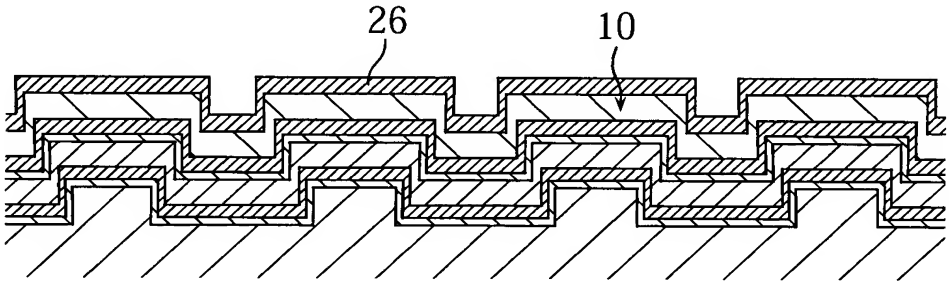


FIG.4C

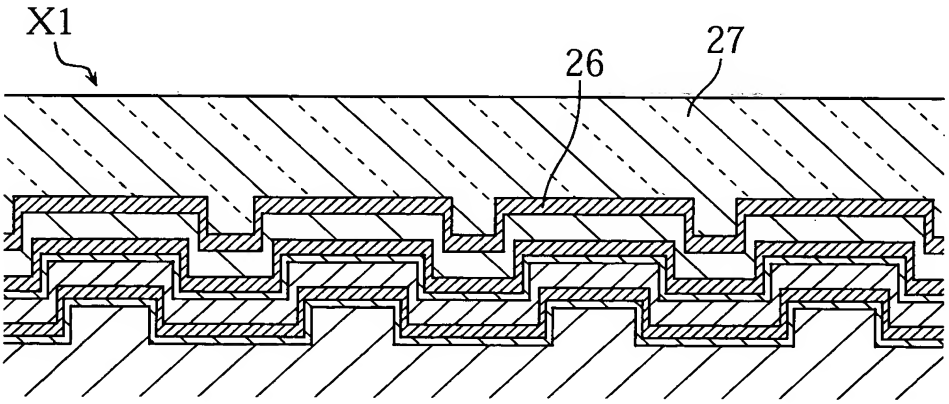


FIG.5A

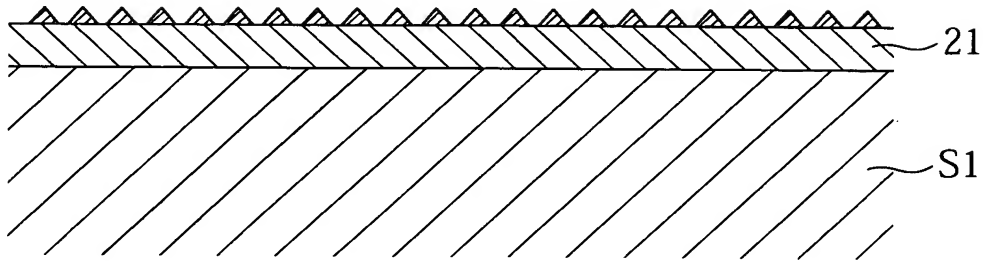


FIG.5B

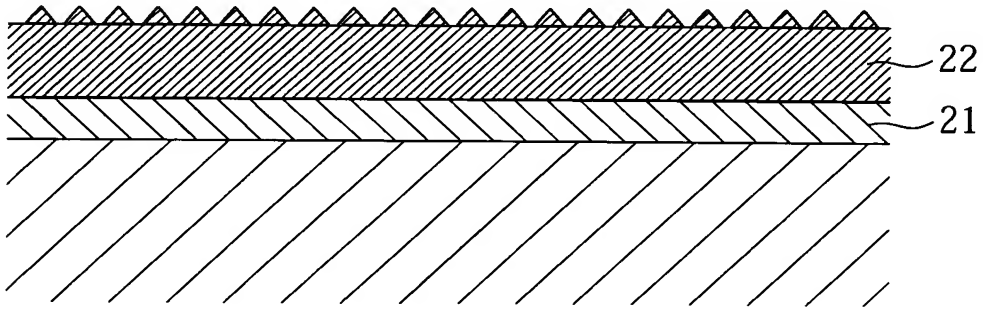


FIG.6A

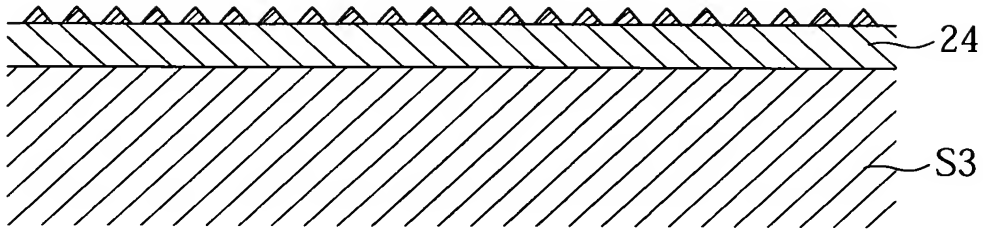


FIG.6B

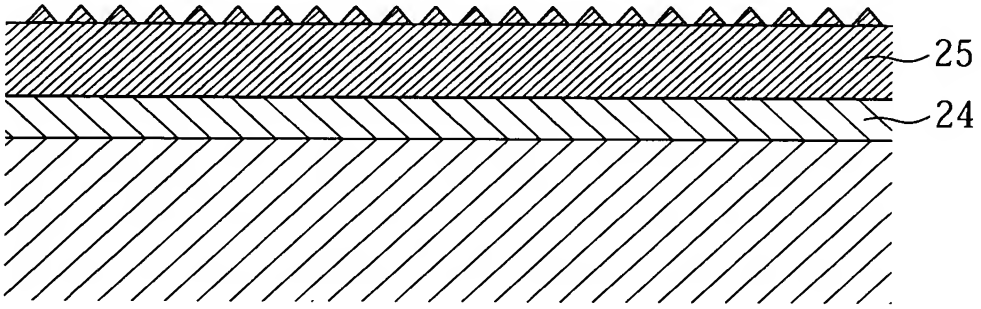


FIG.7

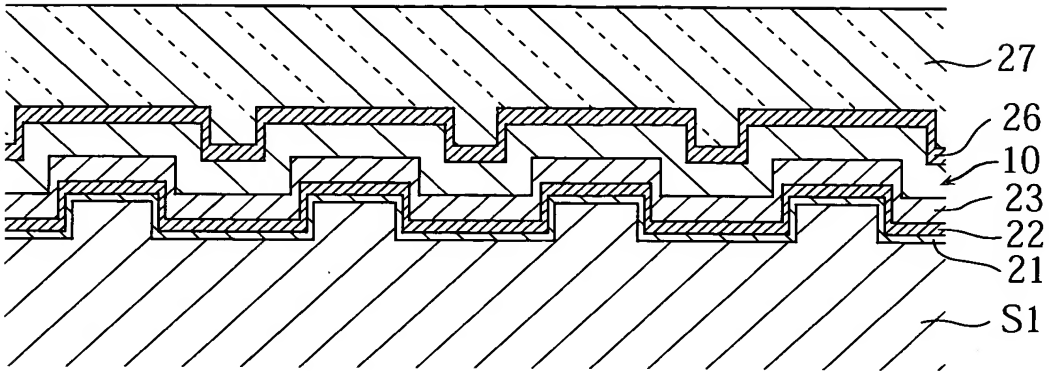


FIG.8

	APS (nm)	R a (nm)	P − V (nm)
Sample A	7.6	0.69	5.9
Sample B	15.2	0.72	6.3
Sample C	23.5	0.73	8.5
Sample D	34.7	0.98	9.5

FIG.9

Roughness Controlling Layer (Pt, 1nm)
Second Foundation Layer (SiN, 5nm)
Heat Sink Layer (AlSi, 30nm)
Initial Layer (Pt, 1nm)
First Foundation Layer (SiN, 2nm)
Substrate (Glass)

FIG.10

Heat Sink Layer (AlSi, 30nm)
Initial Layer (Pt, 1nm)
First Foundation Layer (SiN, 2nm)
Substrate (Glass)

FIG.11

Roughness Controlling Layer (Pt, 1nm)
Heat Sink Layer (AlSi, 30nm)
Substrate (Glass)

FIG.12

Heat Sink Layer (AlSi, 30nm)
Substrate (Glass)

FIG.13

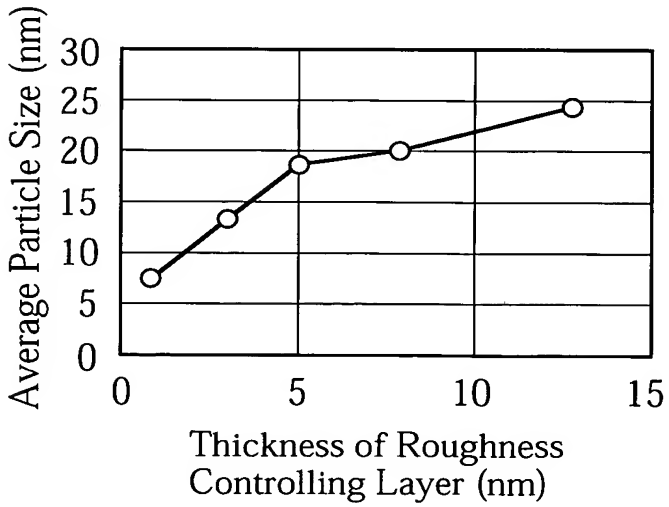


FIG.14

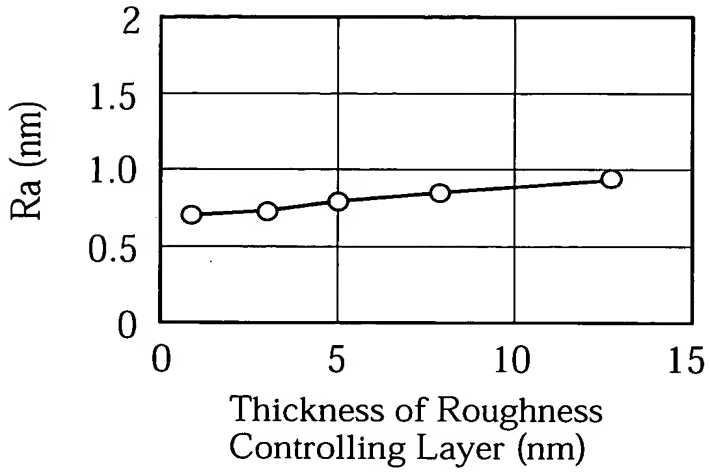

Ra (nm)
2
1.5
1.0
0.5
0
0
5
10
15
Thickness of Roughness Controlling Layer (nm)

FIG.15

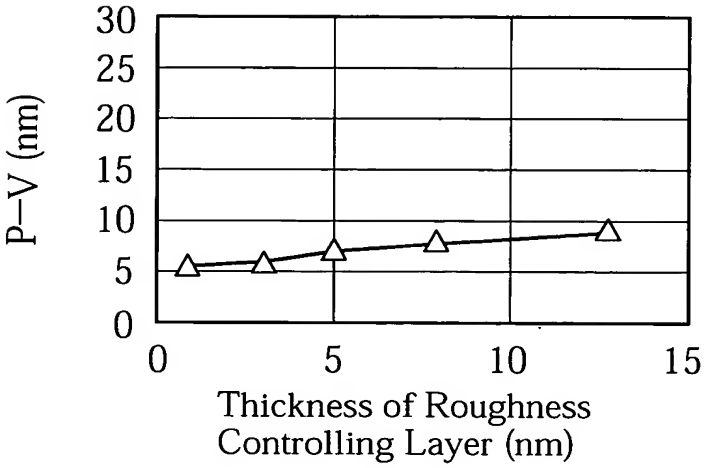

P–V (nm)
30
25
20
15
10
5
0
0
5
10
15
Thickness of Roughness Controlling Layer (nm)

FIG.16

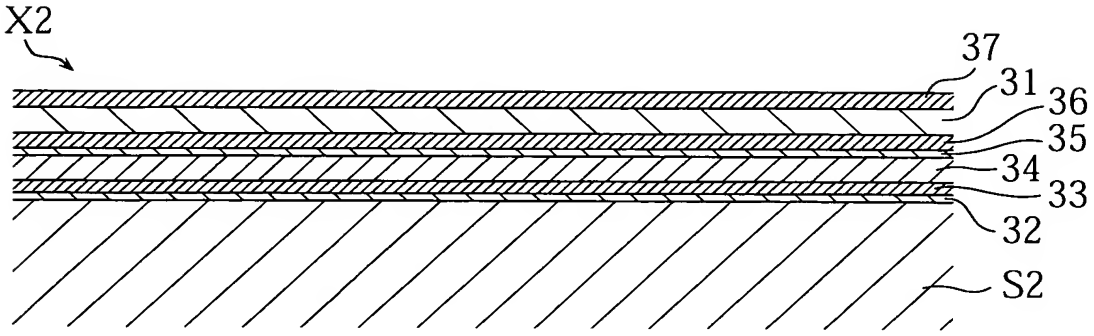

X2
37
31
36
35
34
33
32
S2

FIG.17

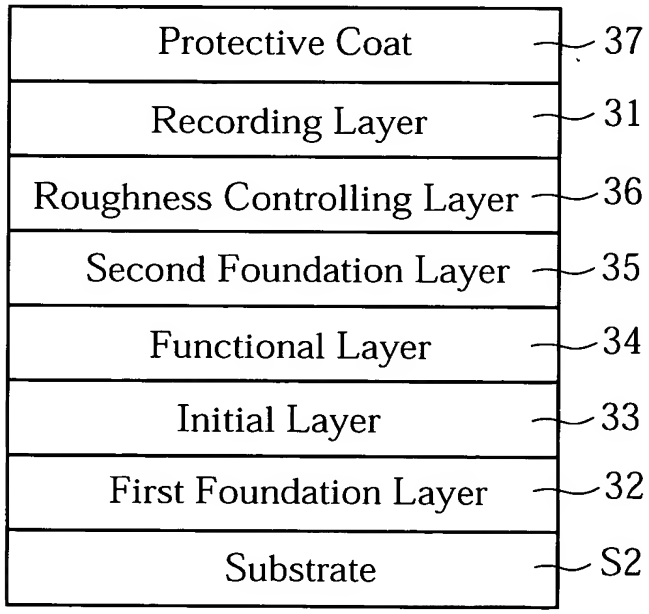

Protective Coat
37
Recording Layer
31
Roughness Controlling Layer
36
Second Foundation Layer
35
Functional Layer
34
Initial Layer
33
First Foundation Layer
32
Substrate
S2

FIG.18

Protective Coat (Transparent Resin, 15 μm)
Enhancement Layer (SiN, 35nm)
Recording Layer ($Tb_{22}Fe_{62}Co_{16}$, 50nm)
Roughness Controlling Layer (Pt, 1nm)
Second Foundation Layer (SiN, 5nm)
Heat Sink Layer (AlSi, 30nm)
Initial Layer (Pt, 1nm)
First Foundation Layer (SiN, 2nm)
Substrate (Glass)

FIG.19

Protective Coat (Transparent Resin, 15 μm)
Enhancement Layer (SiN, 35nm)
Recording Layer ($Tb_{22}Fe_{62}Co_{16}$, 50nm)
Roughness Controlling Layer (Pt, 1nm)
Heat Sink Layer (AlSi, 30nm)
Substrate (Glass)

FIG.20

Protective Coat (Transparent Resin, 15 μm)
Enhancement Layer (SiN, 35nm)
Reproducing Layer ($Gd_{27}Fe_{65}Co_8$, 20nm)
Intermediate Layer ($Tb_{22}Fe_{78}$, 15nm)
Recording Layer ($Tb_{22}Fe_{62}Co_{16}$, 70nm)
Roughness Controlling Layer (Pt, 1nm)
Second Foundation Layer (SiN, 5nm)
Heat Sink Layer (AlSi, 30nm)
Initial Layer (Pt, 1nm)
First Foundation Layer (SiN, 2nm)
Substrate (Glass)

FIG.21

Protective Coat (Transparent Resin, 15 μm)
Enhancement Layer (SiN, 35nm)
Reproducing Layer ($Gd_{27}Fe_{65}Co_8$, 20nm)
Intermediate Layer ($Tb_{22}Fe_{78}$, 15nm)
Recording Layer ($Tb_{22}Fe_{62}Co_{16}$, 70nm)
Roughness Controlling Layer (Pt, 1nm)
Heat Sink Layer (AlSi, 30nm)
Substrate (Glass)

FIG.22

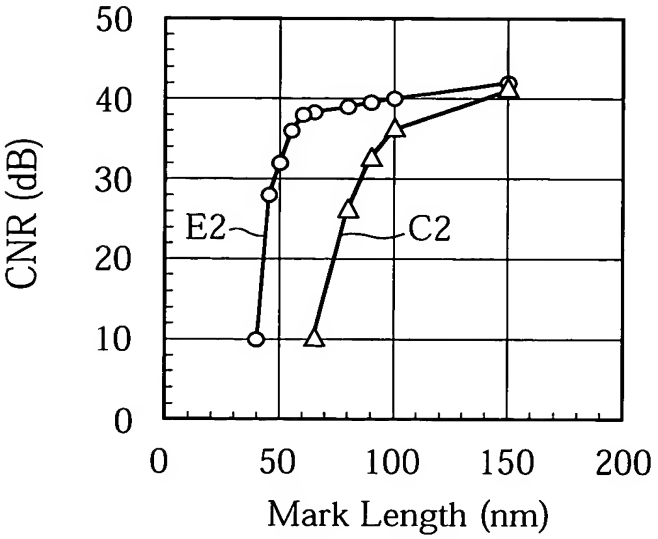
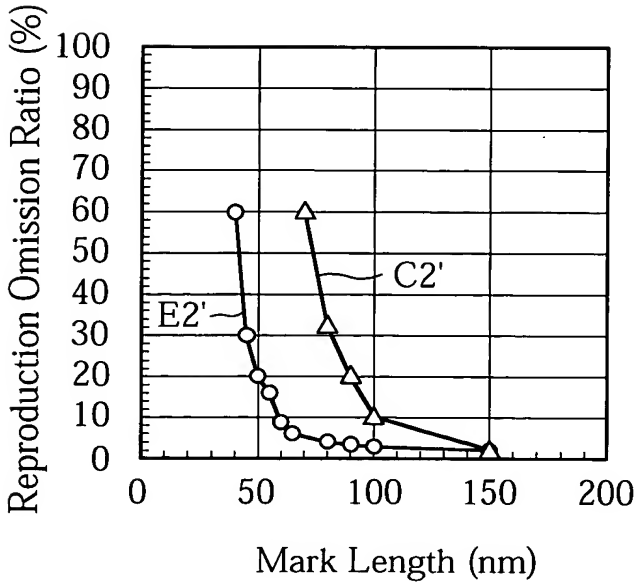

CNR (dB)
50
40
30
20
10
0
E2
C2
0
50
100
150
200
Mark Length (nm)

FIG.23


Reproduction Omission Ratio (%)
100
90
80
70
60
50
40
30
20
10
0
C2'
E2'
0
50
100
150
200
Mark Length (nm)